

# the daily Collegian living

A weekly look at life in the University community

## There is a gas shortage, but severity is unknown

By KATY KOONTZ

Daily Collegian Staff Writer

Despite inconsistencies in the oil companies' predictions, most drivers may not find it as much trouble to get around this summer as they thought.

The shortage scare is real, but not serious enough to drastically alter vacation plans. Conservation to some degree is, however, recommended to consumers by both oil companies and local dealers.

Dennis Byrne of Sun Oil Company (Sunoco), said he anticipates "no tremendous problems" with gas shortages this summer, but he also recognizes that there may be some spot shortages.

He believes the danger may lie in individual stations not limiting the amount of gas their customers may buy. If they don't spread it out, these stations may sell out and close temporarily, he said.

Sunoco is reducing its allocations from 90 percent of what stations ask for to 85 percent, he said.

Both Gibson's Sunoco and Graham's Sunoco, State College service stations, confirmed an 85 percent limit in the amount of gas they receive. However,

Don Graham, owner of Graham's Sunoco, said he believes there will be a shortage that will get worse as the summer progresses.

George Cavell, owner of a third Sunoco station, said, "The situation looks pretty bad right now, especially with unleaded."

Cavell said more cars requiring unleaded gas are on the road, making the demand for unleaded gas higher. He said his supply also has been cut back 15 percent, and he has reduced his hours as well to help keep him from running out of gas.

A spokesman for Mobil Oil said the country might have a problem due to the amount of oil that must be stockpiled for heating. Oil companies reserve a certain amount of their product to be used as heating oil when demand is high in winter.

Jeff Poorman of Ellis Mobil, 913 W. College Ave., said the station's gas supply has been cut back to 85 percent of what it was previously. He predicts a shortage "as bad as the one in 1973."

Pat O'Connor, an Exxon official, said "it is not going to cause long lines if people don't panic." He said he believes there will probably be a shortage this

summer because Iran is exporting only 60 percent of its usual amount.

O'Connor suggests three things that will make significant contributions to saving gas and oil. He advocates lowering thermostats to 65 degrees in the winter and raising them to 75 degrees in the summer. He also said driving at 55 miles per hour and increasing the occupancy rate of airlines would help relieve the problem.

Ricahrd Dyke of Bellefonte Exxon service station disagrees with Exxon officials. He said he does not think there will be a shortage this summer, and reports that he is getting 95 percent of what he was getting last year — not a significant drop. He said people will be traveling less if they think a gas shortage is looming above them.

"It just cost me \$7.50 to fill up my Volkswagen," Jim Scott (8th-civil engineering) said. "Last summer it only cost me \$5."

Dave Naugle (11th-social welfare) said he thinks gas may be harder to get, but he isn't sure it is because of a decrease in supply. In reference to the oil companies' relationship to a possible shortage he said, "If they want one, they'll make one."

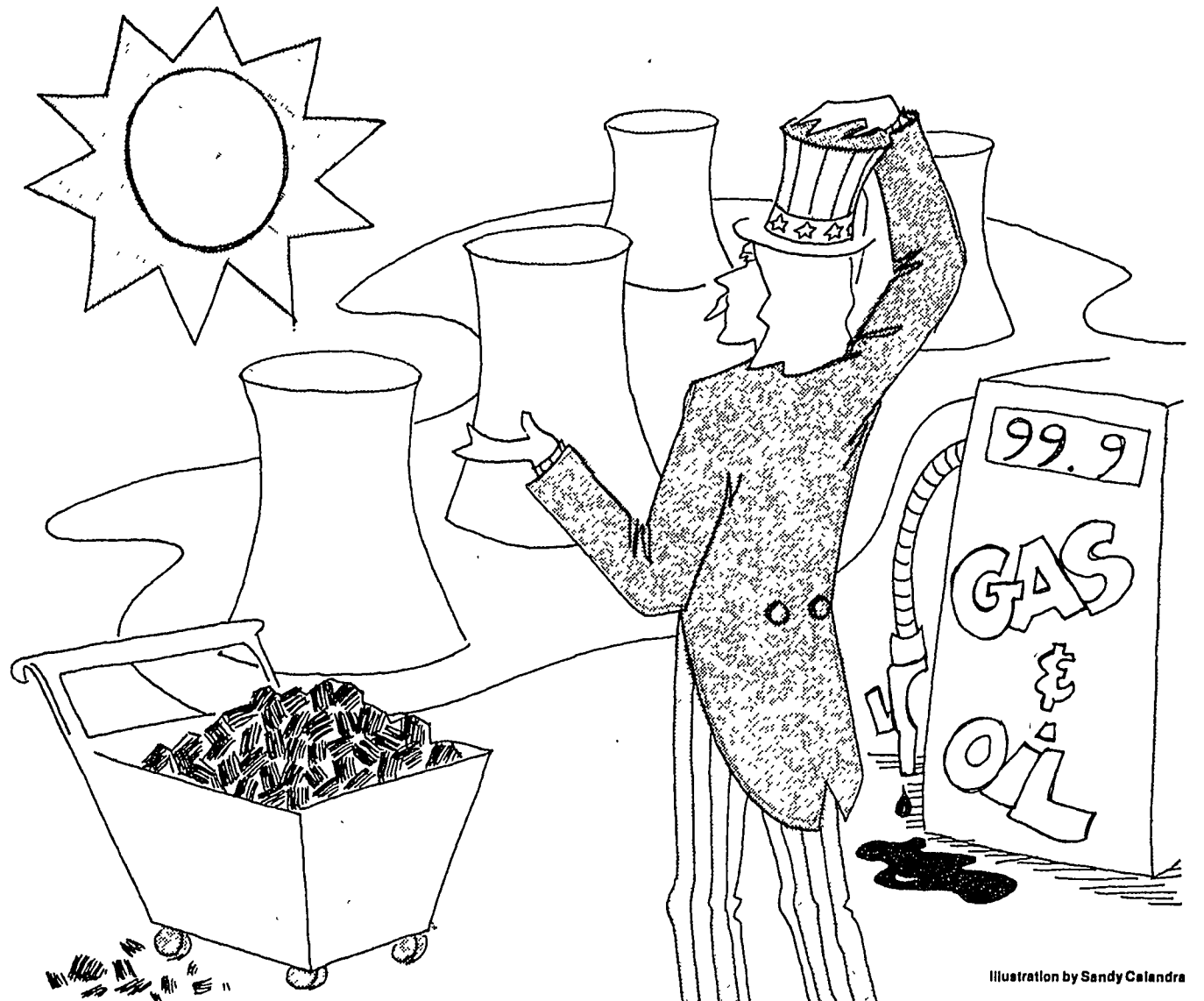


Illustration by Sandy Calandra

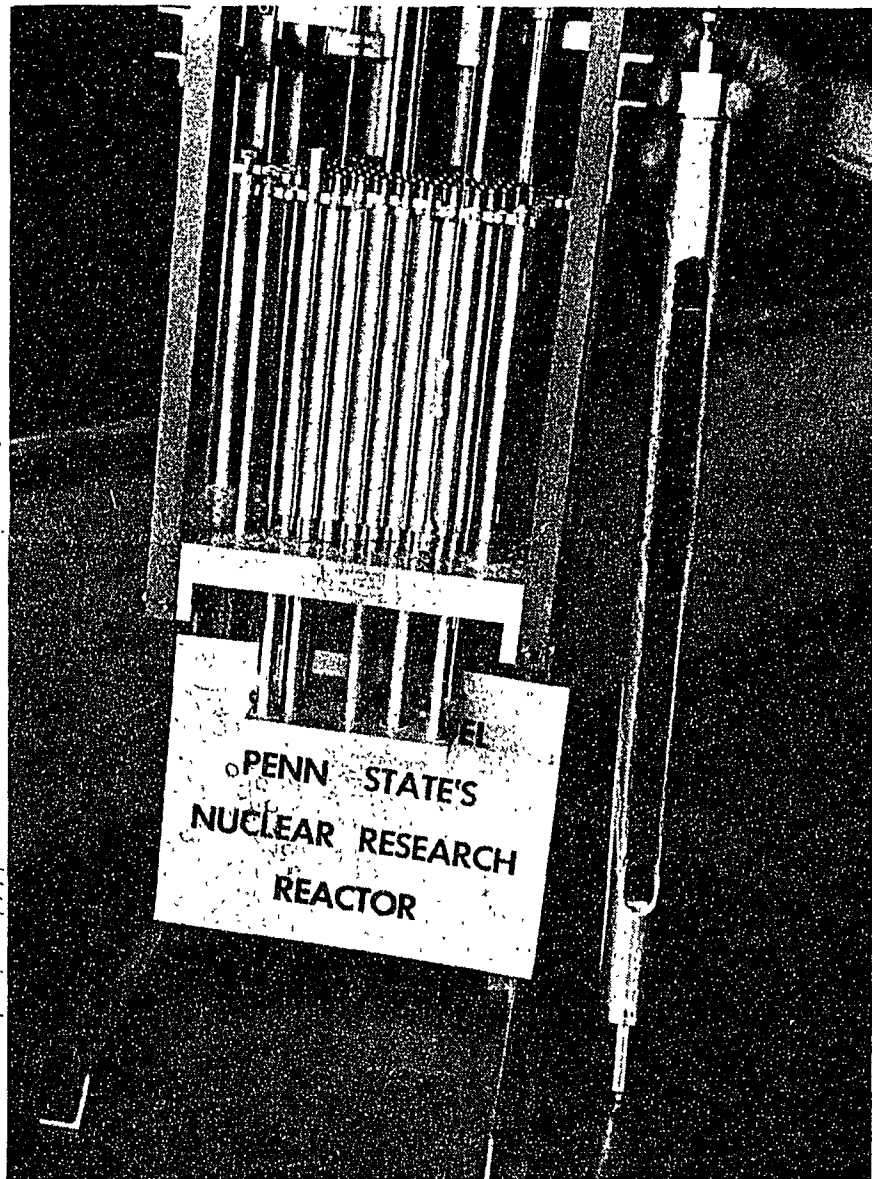


Photo by Chuck Andraso

A scale model of the University's nuclear reactor is shown. To the right is an actual rod used in the core. The University's Breazeale Nuclear Reactor Facility is the oldest University reactor in existence.

## University reactor aids research

By KATY KOONTZ

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Nuclear power has been hailed as the answer to our energy crisis, and at the same time has been condemned as the potential cause of mass mutations and cancer-related deaths.

The University's Breazeale Nuclear Reactor facility on campus, involved in research, instruction and training in nuclear engineering, is trying to make atomic power more of a solution than a hazard.

The facility's director, Sam Levine, said nuclear energy's biggest asset is that it provides an unlimited source of energy at economic prices.

"It is the solution to our energy problem if we want to use it," he said.

But in terms of energy, our future looks bleak, he said. Levine says the press was too sensationalistic in covering the Three Mile Island incident. This has caused people to be afraid, and caused a major setback in the commercial use of nuclear power.

Atomic power may not be publicly approved of and allowed to continue until people realize that it is inevitable, Levine said.

He said this realization will come out of suffering. Sometime within the next decade and probably within the next five years, Levine said that as a result as of less oil, the public will have to go without many of the luxuries it now enjoys. It will be a new experience for Americans that "is going to be a little frightening, but it's going to happen," he said.

It takes years between the decision to start up a nuclear power plant and the day it starts to produce power, he explains. Therefore, Levine predicts that in 20 years, atomic power will be one of

the main suppliers of energy in the country, if no catastrophes, like nuclear war, happen first.

The threat of nuclear war staged by the government and not just by terrorist groups is a real danger, he said. He feels the deprivation felt by Americans when oil starts to run out may result in such a situation.

"Nuclear war because of lack of oil is the greatest hazard our generation faces," he said, "and the more nuclear power is used for energy, the less chance there will be of nuclear war" since our energy needs would be satisfied.

Nuclear power will be only one of the country's major power sources in the future. Coal, Levine said, will be the other main source. A second energy source is necessary because a nuclear power plant cannot adjust its power output during peak and slow periods.

Other energy sources are not at the place where they can step in and take the place of oil, Levine said. "Solar energy," for example, "has its place, but it's not going to provide us with much energy until after the year 2000."

Oil will clearly not last for very much longer, he said. He believes it is wrong to use oil for electricity because it is needed to heat homes and fuel transportation vehicles.

The fission reactor will be the type of reactor used in the near future, since the fusion reactor is 50 years away according to Levine. The breeder reactor, he explained, is not used in this country because of political and moral reasons related to the plutonium it produces and uses.

Although this reactor is valuable because it breeds more fuel than it consumes, the hazards of plutonium

being taken and used for nuclear bombs by unauthorized citizens outweigh the benefits of the system to the scientists of this country. France, however, has developed a breeder reactor for its use.

But other hazards are on the minds of Americans at the moment.

"Three Mile Island is going to teach us a good deal about reactor hazards," Levine said. "TMI was put under the most severe environmental conditions one could anticipate, yet no one was harmed."

Levine said nuclear power can be environmentally safer than people believe. "The hazards of actually killing people are non-existent," he said. The ultimate safety of the plant near Harrisburg is its containment building. If radiation escapes, it does not get out of the building, Levine explained.

Today, investigators are checking ways in which people can make mistakes, he said. "And reactors from now on will be a lot safer."

The fission reactor is the type used today. It produces an average of 2½ neutrons per fission. Some of these neutrons split uranium-235 atoms, an isotope of uranium. The neutrons produced then cause more fission reactions, making a sustained nuclear reaction.

To shut down the reactor control rods containing boron, which are kept in the reactor, are dropped down into the core where the fissioning is taking place. These are called "neutron poison," Levine explained, and absorb the neutrons being emitted, preventing them from fissioning more uranium atoms and thereby stopping the reaction completely.

To start the reaction again, the control

rods are pulled out of the core just enough to start the fissioning process again. The automatic dropping of the control rods into the core by the reactor or the plant operators is called a scram.

The Breazeale Nuclear Reactor Facility at the University does not generate power for the community or the residence halls, but instead is used mainly for research. It is the oldest university reactor in existence, and was the second of 15 to 20 university reactors to be built in the country. It also is the only university-affiliated reactor in the state, Levine said.

To ensure there is no danger to the environment, the Nuclear Regulatory Committee inspected the Breazeale reactor four times during the last report period. According to the annual report, no items of non-compliance were found.

This fission reactor was first built in 1955 and improved in 1965. Its low power density with extra-inherent safety characteristics built into the core make it "the safest reactor in the world," Levine said.

Levine said it cost \$300,000 when the reactor was initially built, but to build it today would cost several million dollars. Excluding the salaries of the staff, the Breazeale reactor costs about \$30,000 annually to run, Levine said. The government pays for the fuel, and some other revenue comes in through research contracts.

The wastes accumulated from the reactor are low level, and are shipped to South Carolina to be buried. Levine said the facility generates less radioactive waste than the other University departments also generating these wastes, such as those involved in dating, medicine or agriculture.

## Solar homes bring owners in touch with environment

By KAREN ROLLER

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Somehow people don't mind getting up in the morning as much when they awaken to sunshine pouring into their rooms . . . and for a certain few, into their solar collectors.

Solar collectors are part of a solar home package for people taking a free ride on heating, compliments of ol' Sol. Basically, the process goes like this:

The sun's rays are trapped in a solar collector — a glass box on a roof, for example — creating a heat source. Water is poured through the box and heated. The heated water then circulates through the house to a heat storage tank, usually in the basement or utility room, and then returns to the solar collector. And presto, a house is heated a la sun.

Of course a house can be heated by the sun in many other ways, too. Greenhouses connected to homes are a favorite, or in the case of Mike Mease of Port Matilda, a greenhouse and a 32-ton stone and concrete wall built into the south side of the house does the job. Mease said the wall, called a trombe wall, is painted black to absorb the sun's rays.

"I've always been interested in energy sources and saving energy," Mease said. "Energy shortages are quite serious, and there are some financial considerations to think about."

Mease, who is building the solar home and most of the inside furnishings himself, said he and his wife were spending about \$120 a month in oil bills until they moved into their solar home about a month ago.

Since they just moved in, Mease said he doesn't know for sure how much the solar home will save them in energy bills, but estimated spending only \$180 a year in utility bills — about \$15 a month for what little electricity they will need.

Kit Hume, associate professor of English, said she and her husband expect to spend about \$100 in heating costs next year for their house which is "entirely designed to use solar energy."

Hume said the house, built last summer, uses a 525-foot solar collector, a heat pump, greenhouse, back-up electricity system and a wood-burning stove. The fireplace generates heat during the winter months by heating several loops of piping built into a double wall around the fireplace. Water flows through the pipes, attaining a temperature of 150 to 200 degrees, and circulates through the home to a solar tank.

"If you burn a fire from about 5 to 10 p.m., you'll have enough heat in the house for 24 hours," Hume said.

Using a Russian-style continental fireplace to heat his home during the winter is also part of Mease's plans. The fireplace is like a masonry stove "where you don't see the fire," he said.

"You build a fire in the three-to-four-foot chamber. Gases go up a seven-foot chimney, turn and go back down five feet. They go over and up and down," he said. "All the heat from the wood goes into the house. Very little escapes out the chimney."

"They say you can put your hand over the chimney and not feel the heat at all," he said. "I'm really excited about this thing."

"Of course, we haven't used any heat besides the sun in the last week," he added. "Several nights it was in the upper 20s and 30s, but the house was still about 65 degrees when I got up in the morning."

Solar homes make people aware of their environment and also give them a sense of control over what happens to them, according to Ted First, a major solar contractor.

People using the sun for energy won't just chatter about the weather, First said. "They'll say 'It's cloudy out today, so I'm going to build a fire. But it will be sunny tomorrow so I won't built too big of one so the sun can do the work.'"

"A lot of people relate to outside temperature and how it affects their building," he said. "They feel part of the environment. And I think that consciousness, that being aware of things, is very healthy."

Solar homes make for "good economics," First said. "I saw it as unethical, stupid, even suicidal" that America uses about 30 percent of the world's resources. That's down from a high of 50 percent a few years ago, he said.

First, who built the Humes' house, started building solar homes about five years ago and has built "about five energy-conscious homes in mostly residential areas," he said. When building a home, he said, he looks at different factors, such as where the winds are coming from, whether the ground is stony, rocky or sandy, where the trees are, and whether the ground is level or hilly. A home built into a hillside can use the earth for insulation. Sometimes the site will contain a "magnificent view that's too good to miss," he said, and that will have to be taken into consideration, too.

First said he then fits all those factors into what the homeowners want. "It's more than just plopping down a home on a lot," he said. "You want to design something for the people who are going to live there." You have to see what kind of a lawn they may want, any personal preferences they may

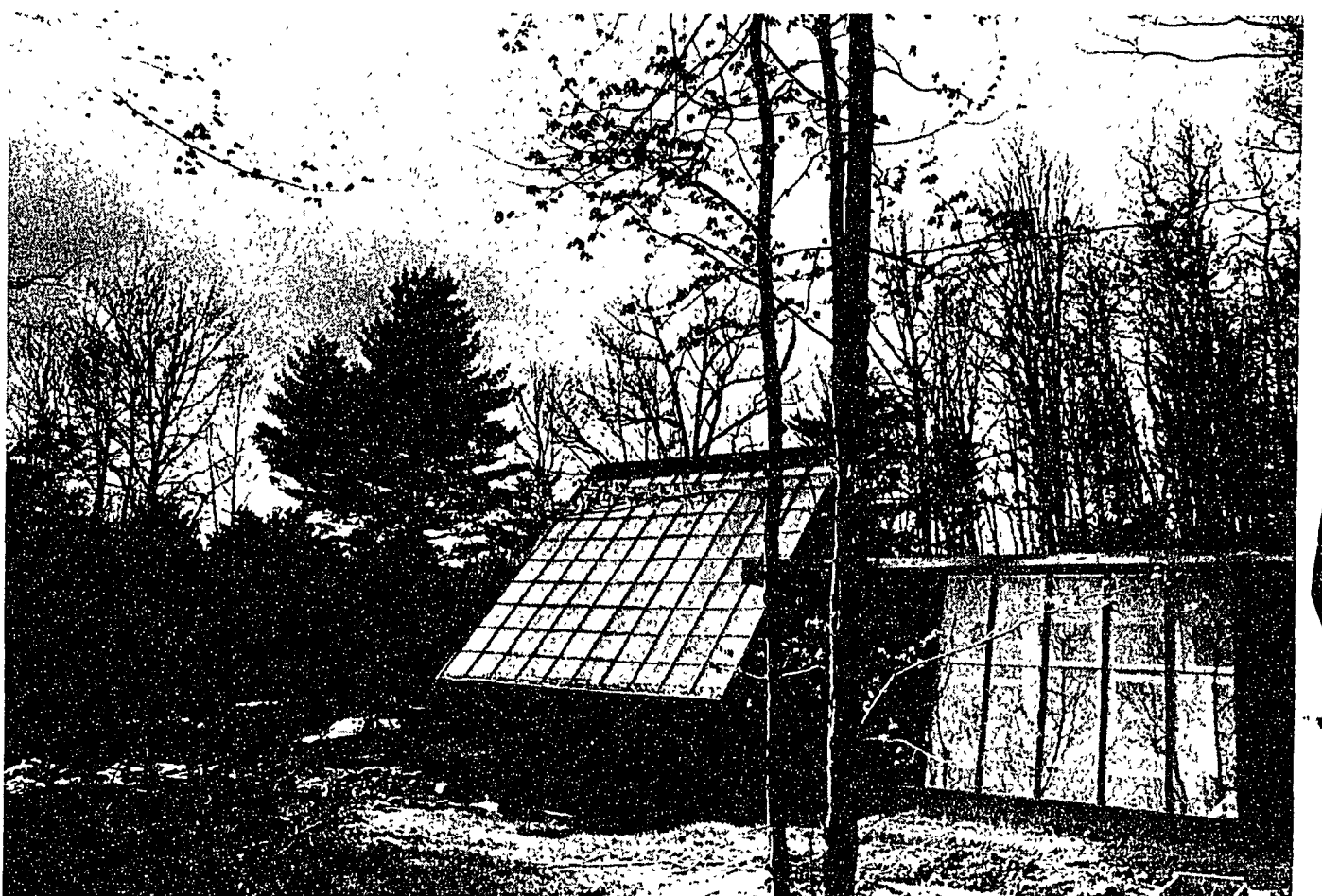


Photo by Dan Quarry

Kit and David Hume's home, built last summer, has a 525-foot solar collector. The home is "entirely designed to use solar energy."

have, like a Japanese garden, which you also have to keep in mind, he said.

"The more ingredients there are, the more I enjoy it," he said. "All the variables haven't gotten to me. The more specialized, the more challenging."

First also said one of the benefits in using solar energy is

saving money from being spent on foreign oil. "There's a pipeline of money leaving this country," he said.

Mease also said using solar energy is beneficial in eliminating the ever-rising cost of oil.

"I'm really tickled to death with solar energy," he said. "It's like a free lunch."